CERT® Operational Resilience: MANAGE, PROTECT, AND SUSTAIN

1.23.14 • 8:30 am ET–5:00 pm ET

Cybersecurity Update

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Information and Infrastructure Security Analyst - CERT® Division

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Prior to joining CERT, John served as a Special Agent for the United States Postal Service Office of the Inspector General. John also worked for the U.S. Postal Inspection Service, researching online criminal behavior, conducting internet-based investigations, and supporting the development of information systems-based products internationally.

A U.S. Army veteran, John is a member of the Pennsylvania bar. He obtained his J.D. and Master of Public and International Affairs from the University of Pittsburgh.

Report Documentation Page

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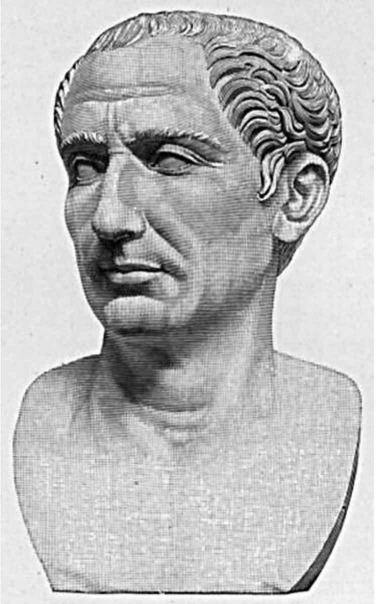


Julius Caesar
(100-44 BC)

"… If he had anything confidential to say, he wrote it in cipher, that is, by so changing the order of the letters of the alphabet, that not a word could be made out …"

Suetonius, *Life of Julius Caesar* 56

"… When I started my career, in the late 80s, if there was a bank robbery, the pool of suspects was limited to the people who were in the vicinity at the time. Now when a bank is robbed the pool of suspects is limited to the number of people in the world with access to a $500 laptop and an Internet connection…"

Shawn Henry, former FBI Executive Assistant Director

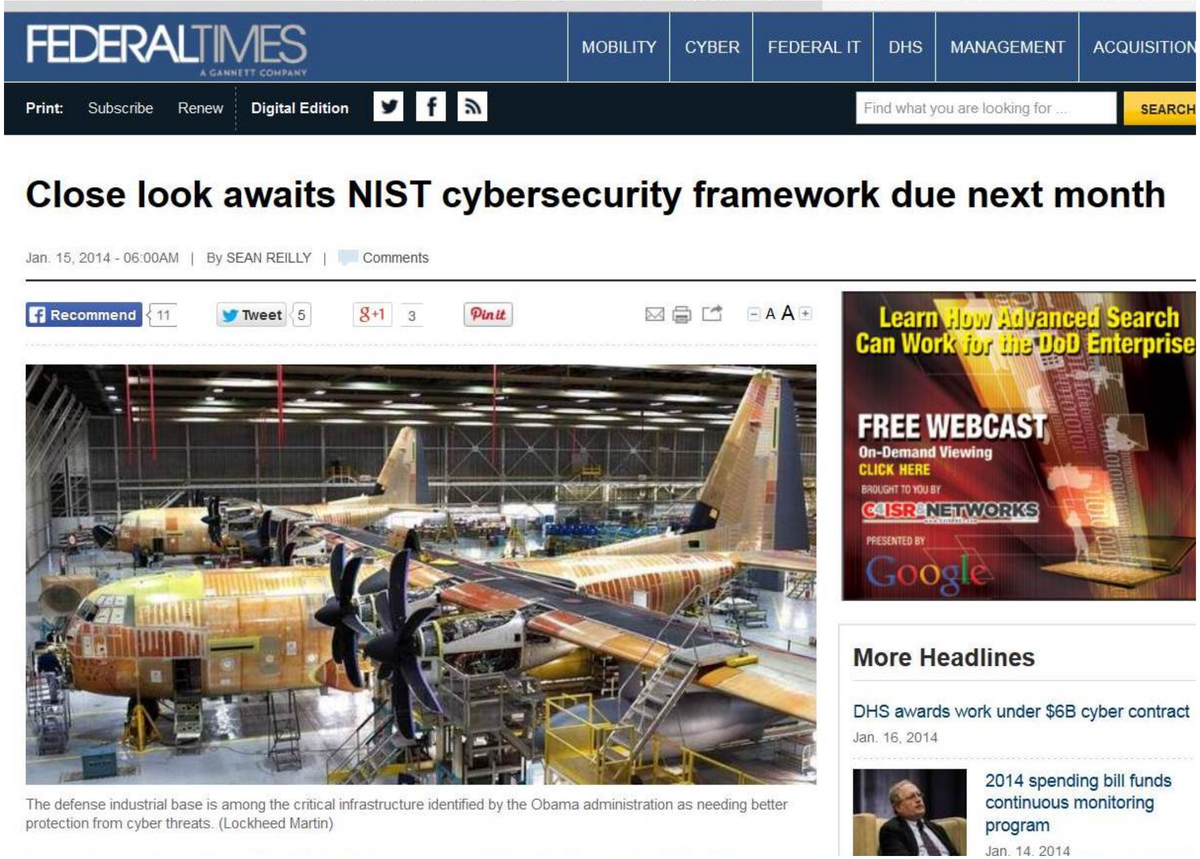
How has cybersecurity changed over the last five years?

A few thoughts . . .

I. Nation-State Involvement
II. Complexity and Importance of External Entities
III. Greater Dependency Every Day
IV. Increasing Cooperation (?)

Nation-State Involvement

The involvement of governments in cybersecurity – both from a defensive and an offensive perspective – has become much more apparent.



Close look awaits NIST cybersecurity framework due next month

Jan. 15, 2014 - 06:00AM | By SEAN REILLY | Comments

The defense industrial base is among the critical infrastructure identified by the Obama administration as needing better protection from cyber threats. (Lockheed Martin)

More Headlines

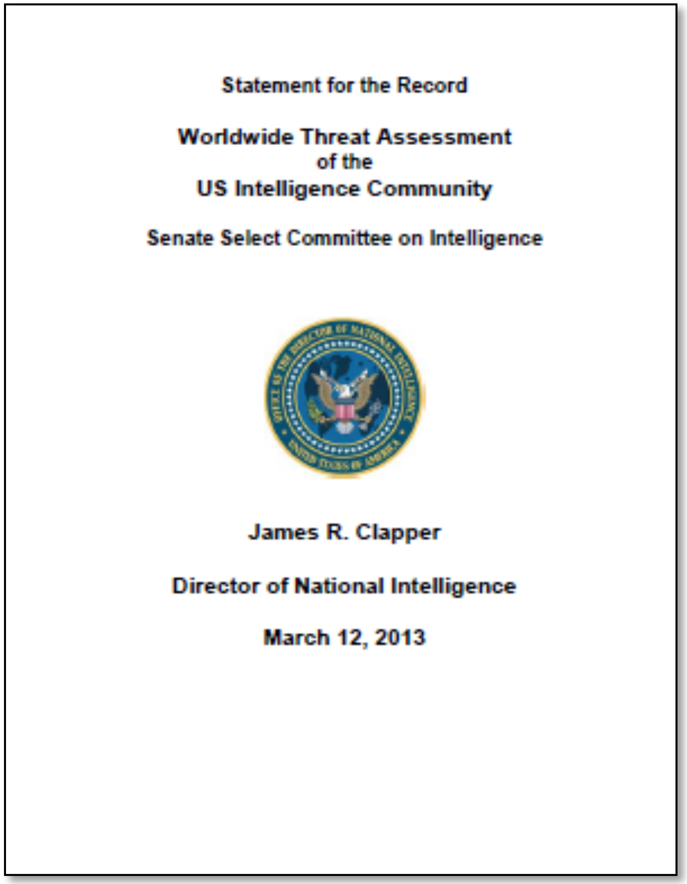
DHS awards work under $6B cyber contract
Jan. 16, 2014

2014 spending bill funds continuous monitoring program
Jan. 14, 2014

Director of National Intelligence – March 12, 2013

U.S. Intelligence Community Worldwide Threat Categories

1. **Cyber**
2. Terrorism & transnational organized crime
3. WMD proliferation
4. Counterintelligence
5. Counterspace
6. Insecurity and competition for natural resources
7. Health and pandemic threats
8. Mass atrocities



Statement for the Record

Worldwide Threat Assessment
of the
US Intelligence Community

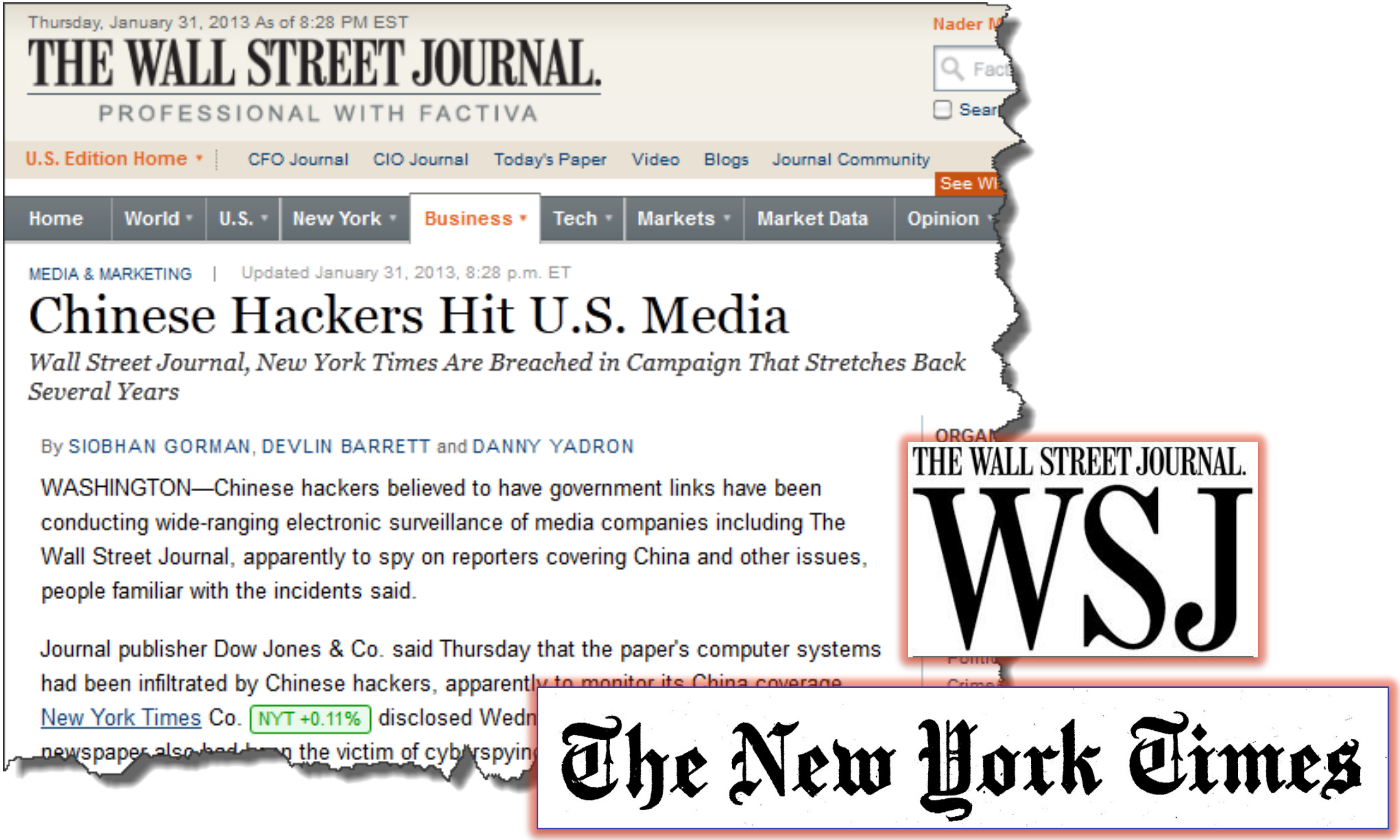
Senate Select Committee on Intelligence

James R. Clapper

Director of National Intelligence

March 12, 2013

January 31, 2013



Thursday, January 31, 2013 As of 8:28 PM EST

THE WALL STREET JOURNAL.

PROFESSIONAL WITH FACTIVA

MEDIA & MARKETING | Updated January 31, 2013, 8:28 p.m. ET

Chinese Hackers Hit U.S. Media

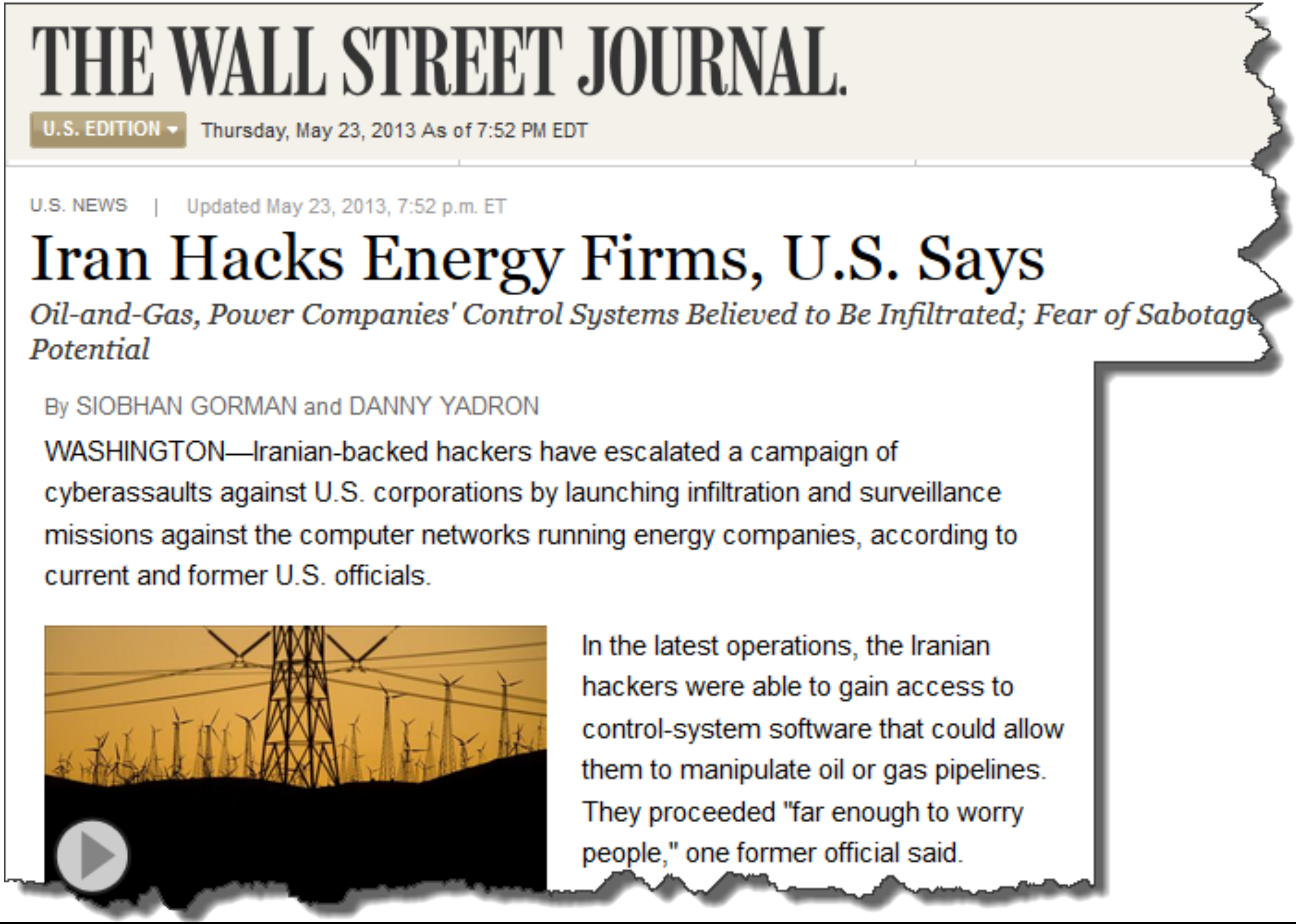
Wall Street Journal, New York Times Are Breached in Campaign That Stretches Back Several Years

By SIOBHAN GORMAN, DEVLIN BARRETT and DANNY YADRON

WASHINGTON—Chinese hackers believed to have government links have been conducting wide-ranging electronic surveillance of media companies including The Wall Street Journal, apparently to spy on reporters covering China and other issues, people familiar with the incidents said.

Journal publisher Dow Jones & Co. said Thursday that the paper's computer systems had been infiltrated by Chinese hackers, apparently to monitor its China coverage New York Times Co. NYT +0.11% disclosed Wedn newspaper also had been the victim of cyberspyin

May 23, 2013



THE WALL STREET JOURNAL.

Thursday, May 23, 2013 As of 7:52 PM EDT

U.S. NEWS | Updated May 23, 2013, 7:52 p.m. ET

Iran Hacks Energy Firms, U.S. Says

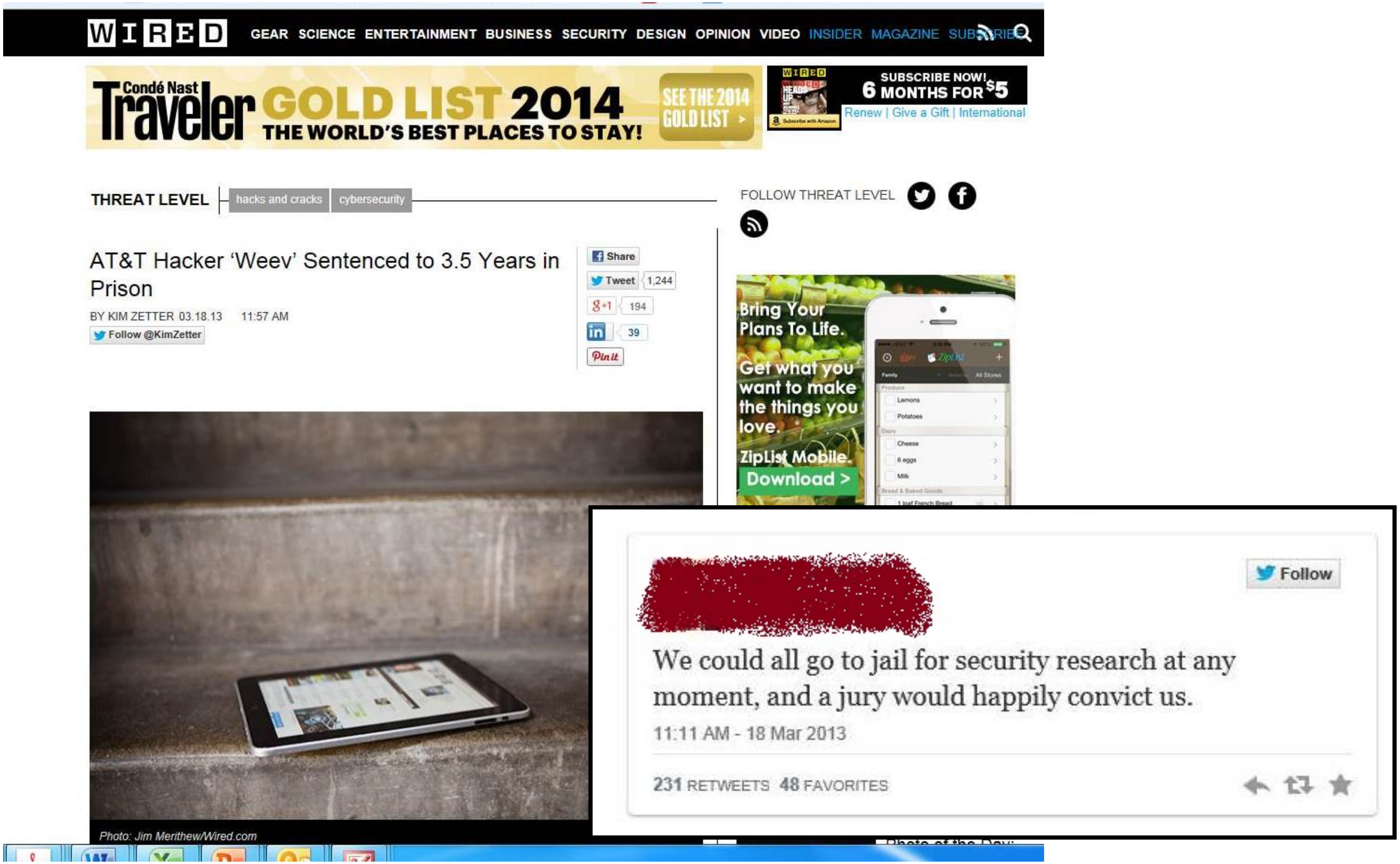
Oil-and-Gas, Power Companies' Control Systems Believed to Be Infiltrated; Fear of Sabotage Potential

By SIOBHAN GORMAN and DANNY YADRON

WASHINGTON—Iranian-backed hackers have escalated a campaign of cyberassaults against U.S. corporations by launching infiltration and surveillance missions against the computer networks running energy companies, according to current and former U.S. officials.

In the latest operations, the Iranian hackers were able to gain access to control-system software that could allow them to manipulate oil or gas pipelines. They proceeded "far enough to worry people," one former official said.

But are the laws changing as needed?



WIRED
GEAR SCIENCE ENTERTAINMENT BUSINESS SECURITY DESIGN OPINION VIDEO INSIDER MAGAZINE SUBSCRIBE

AT&T Hacker 'Weev' Sentenced to 3.5 Years in Prison

BY KIM ZETTER 03.18.13 11:57 AM

Photo: Jim Merithew/Wired.com

[redacted]

We could all go to jail for security research at any moment, and a jury would happily convict us.

11:11 AM - 18 Mar 2013

231 RETWEETS 48 FAVORITES

Complexity and the Importance of External Entities

The protection and sustainment of assets that your organization relies on . . .

❑ People

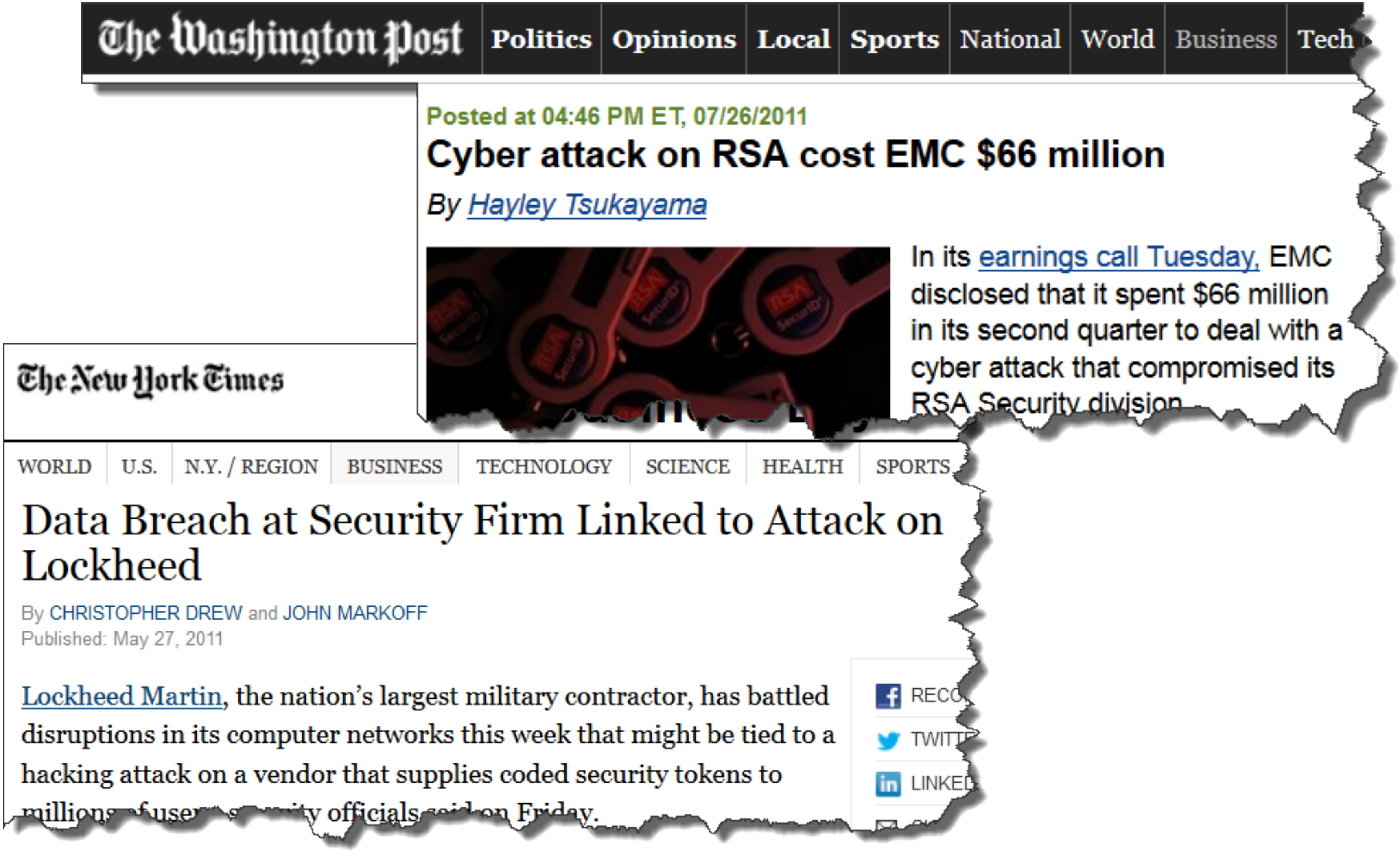
❑ Information

❑ Technology

❑ Facilities

increasingly depends on contracted and arms-length relationships.

March 2011



The Washington Post | Politics | Opinions | Local | Sports | National | World | Business | Tech

Posted at 04:46 PM ET, 07/26/2011

Cyber attack on RSA cost EMC $66 million

By Hayley Tsukayama

In its earnings call Tuesday, EMC disclosed that it spent $66 million in its second quarter to deal with a cyber attack that compromised its RSA Security division

The New York Times

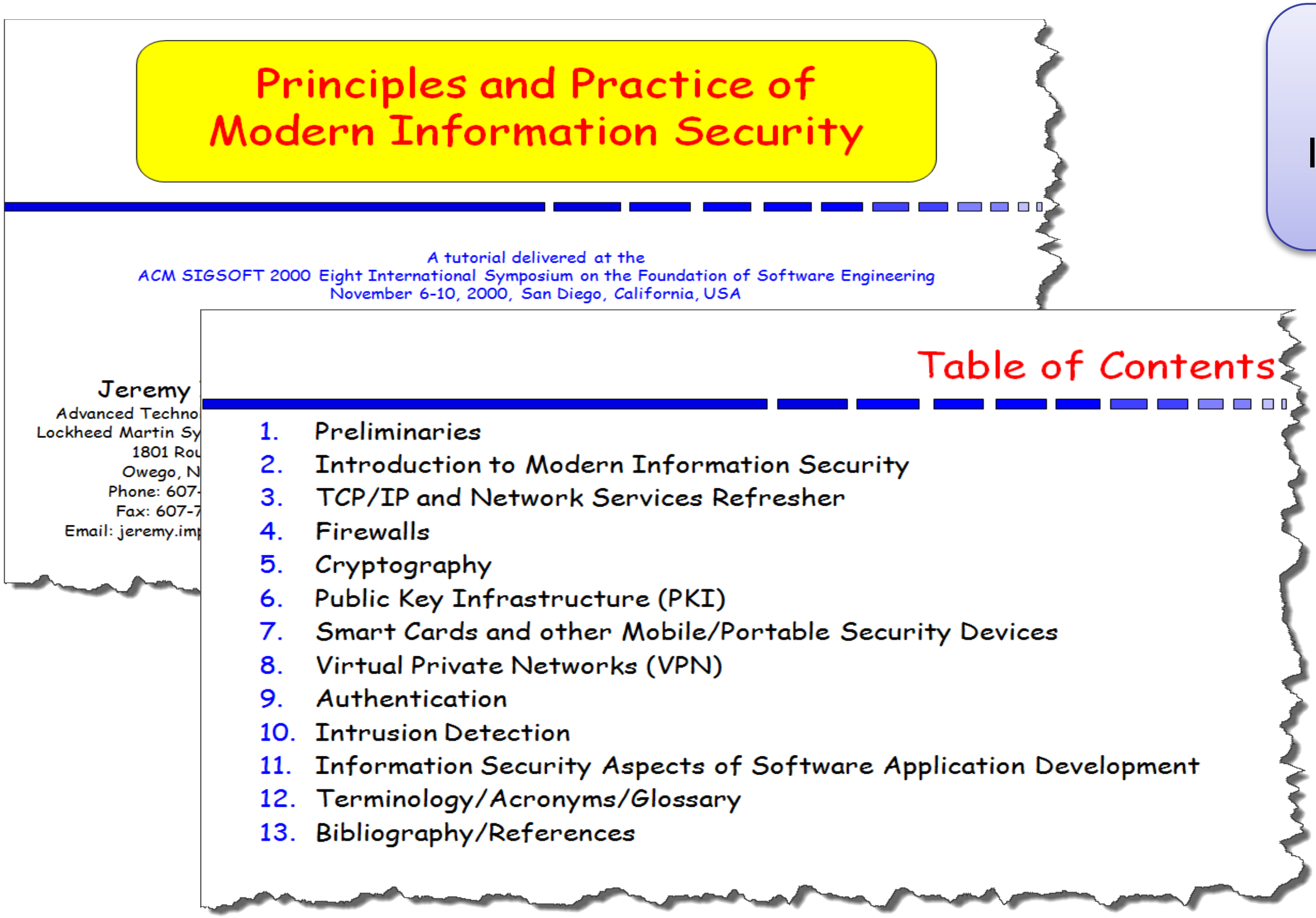
WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS

Data Breach at Security Firm Linked to Attack on Lockheed

By CHRISTOPHER DREW and JOHN MARKOFF
Published: May 27, 2011

Lockheed Martin, the nation's largest military contractor, has battled disruptions in its computer networks this week that might be tied to a hacking attack on a vendor that supplies coded security tokens to millions of users, security officials said on Friday.

Yesterday it would have looked like …



Principles and Practice of
Modern Information Security

A tutorial delivered at the
ACM SIGSOFT 2000 Eight International Symposium on the Foundation of Software Engineering
November 6-10, 2000, San Diego, California, USA

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Lockheed Martin Sy
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Fax: 607-7
Email: jeremy.imp

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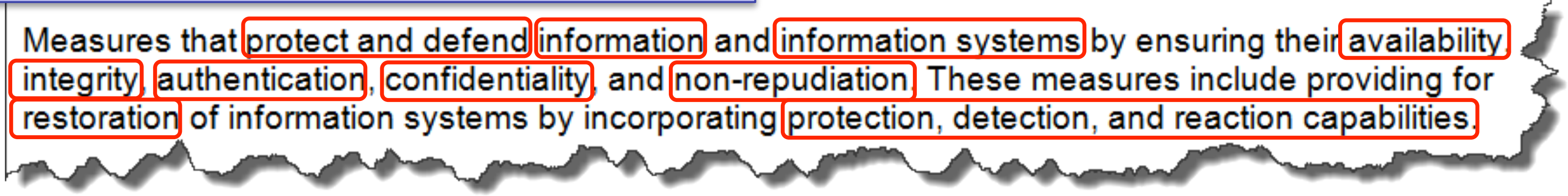
8. Virtual Private Networks (VPN)
9. Authentication
10. Intrusion Detection
11. Information Security Aspects of Software Application Development
12. Terminology/Acronyms/Glossary
13. Bibliography/References

It would have been all about IT and technical controls.

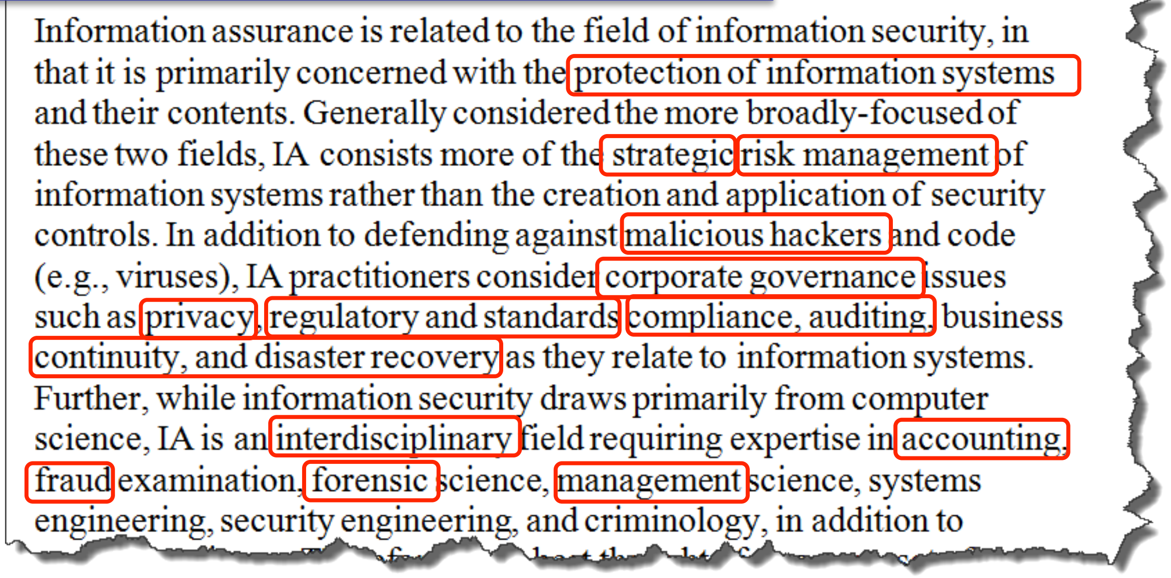
Today it has to be about …

Sample definition of Information Assurance:



Measures that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation. These measures include providing for restoration of information systems by incorporating protection, detection, and reaction capabilities.

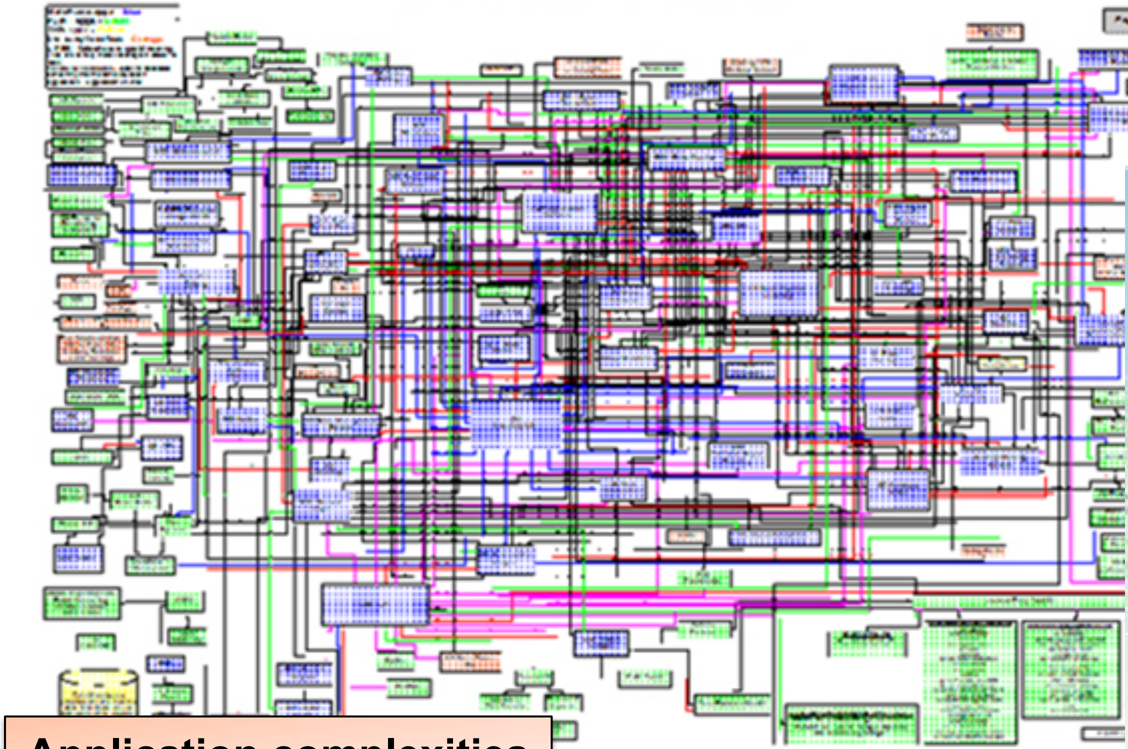
Sample definition of Information Assurance:



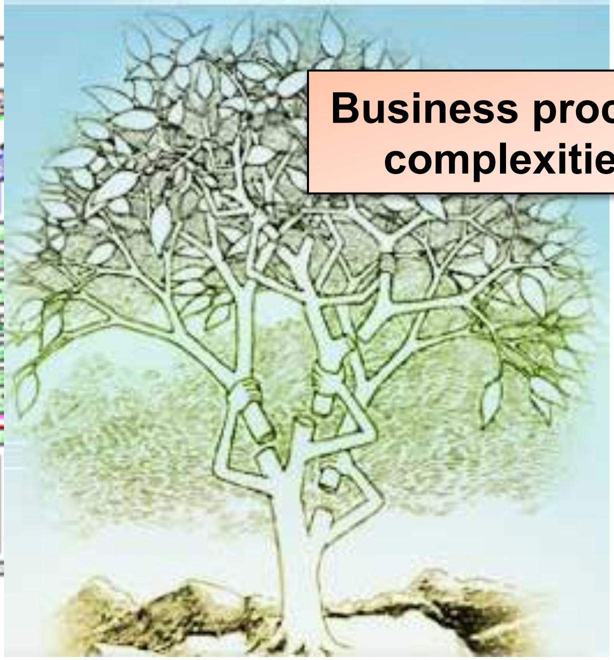
Information assurance is related to the field of information security, in that it is primarily concerned with the protection of information systems and their contents. Generally considered the more broadly-focused of these two fields, IA consists more of the strategic risk management of information systems rather than the creation and application of security controls. In addition to defending against malicious hackers and code (e.g., viruses), IA practitioners consider corporate governance issues such as privacy, regulatory and standards compliance, auditing, business continuity, and disaster recovery as they relate to information systems. Further, while information security draws primarily from computer science, IA is an interdisciplinary field requiring expertise in accounting, fraud examination, forensic science, management science, systems engineering, security engineering, and criminology, in addition to

and more …

Today it has to deal with …



Application complexities



Business process complexities

and more …

Managing the Supply Chain for ICT Services

We realize new business opportunities, flexibility, and cost savings by outsourcing services . . .

. . . but how do we manage the ***right relationships*** and ***mitigate the resulting risks*** in a reliable way ***over time***?

Greater Dependency Every Day

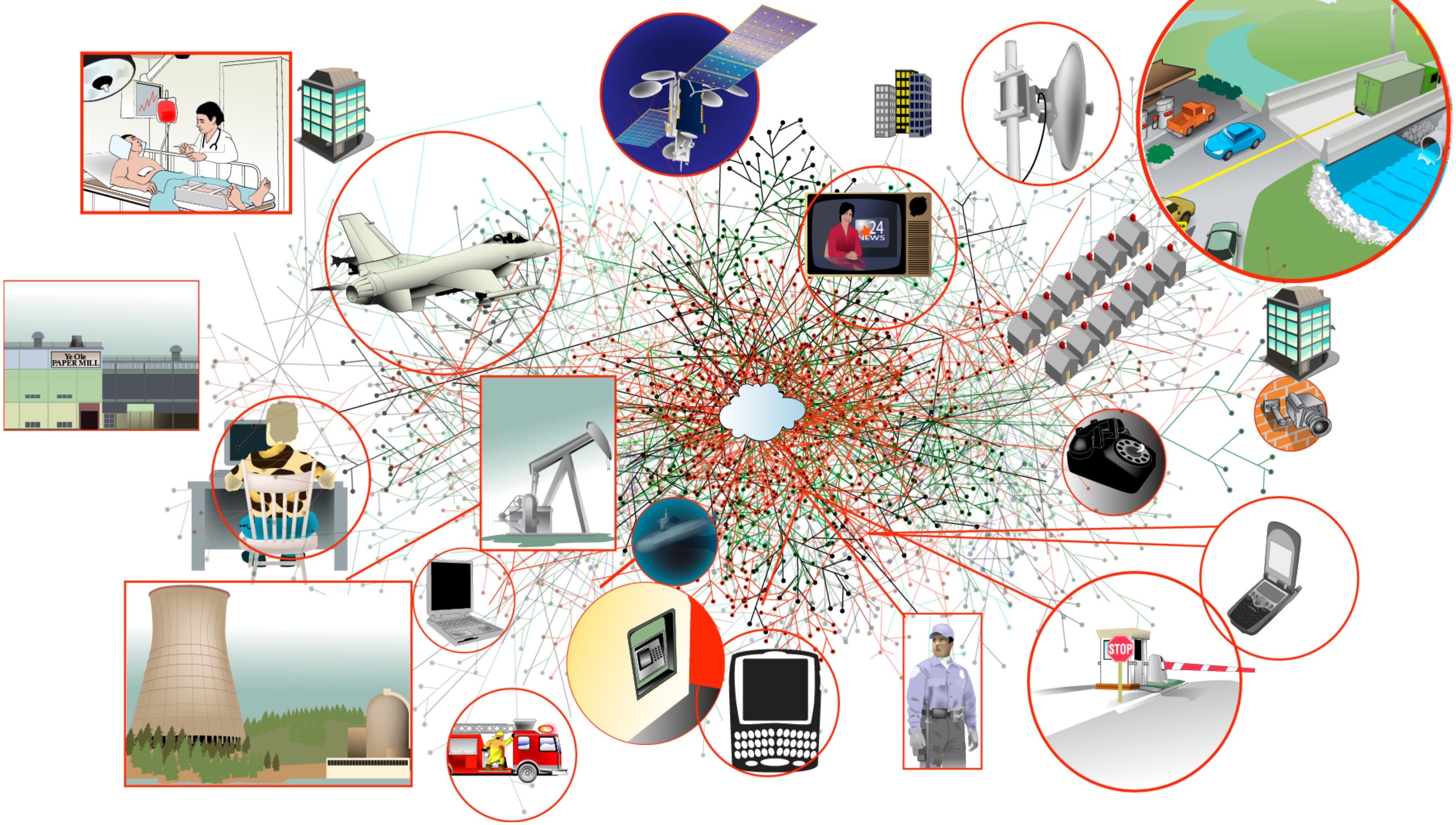
CYBER

We are in a major transformation because our critical infrastructures, economy, personal lives, and even basic understanding of—and interaction with—the world are becoming more intertwined with digital technologies and the internet. In some cases, the world is applying digital technologies faster than our ability to understand the security implications and mitigate potential risks.

—James Clapper, Director of National Intelligence,

March 2013

We Depend on Evolving Cyber Ecosystems

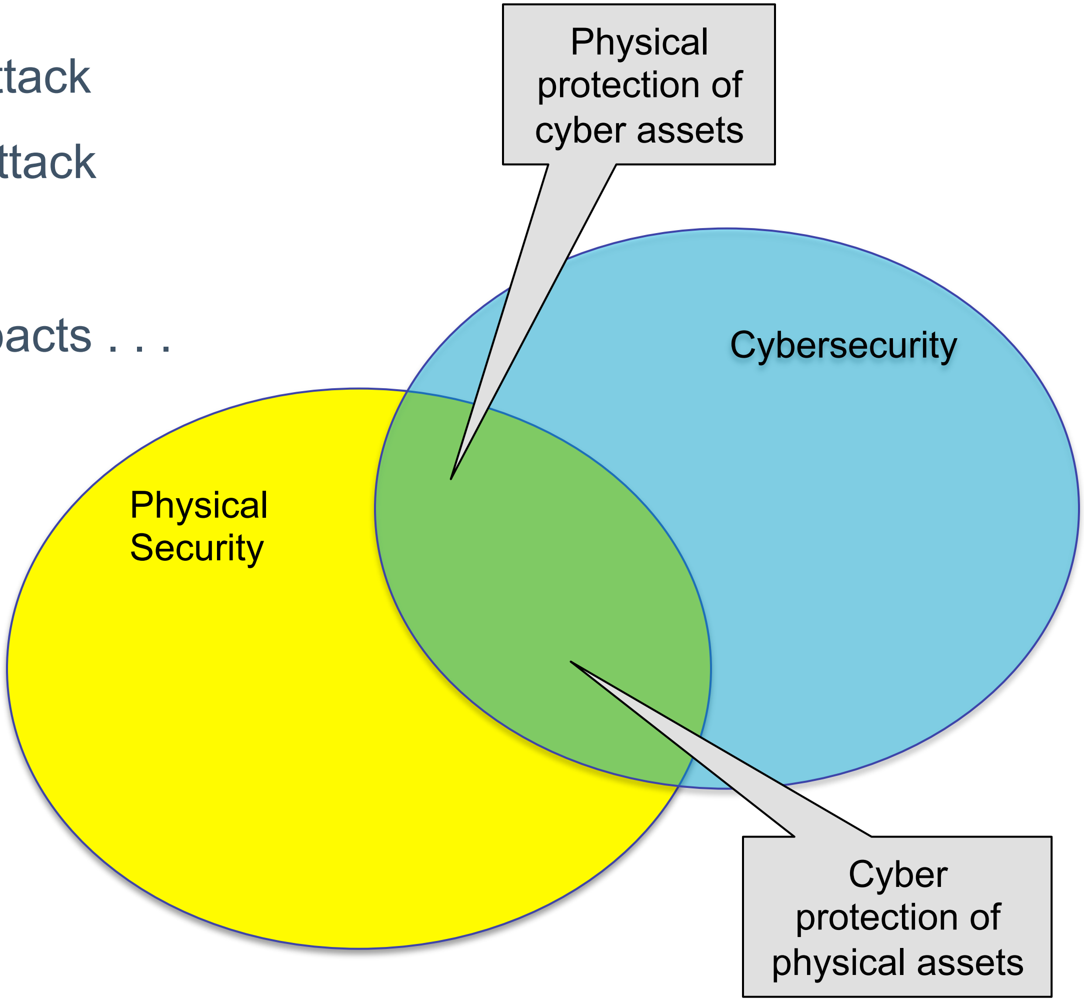


Intertwining of Physical and Cyber Domains

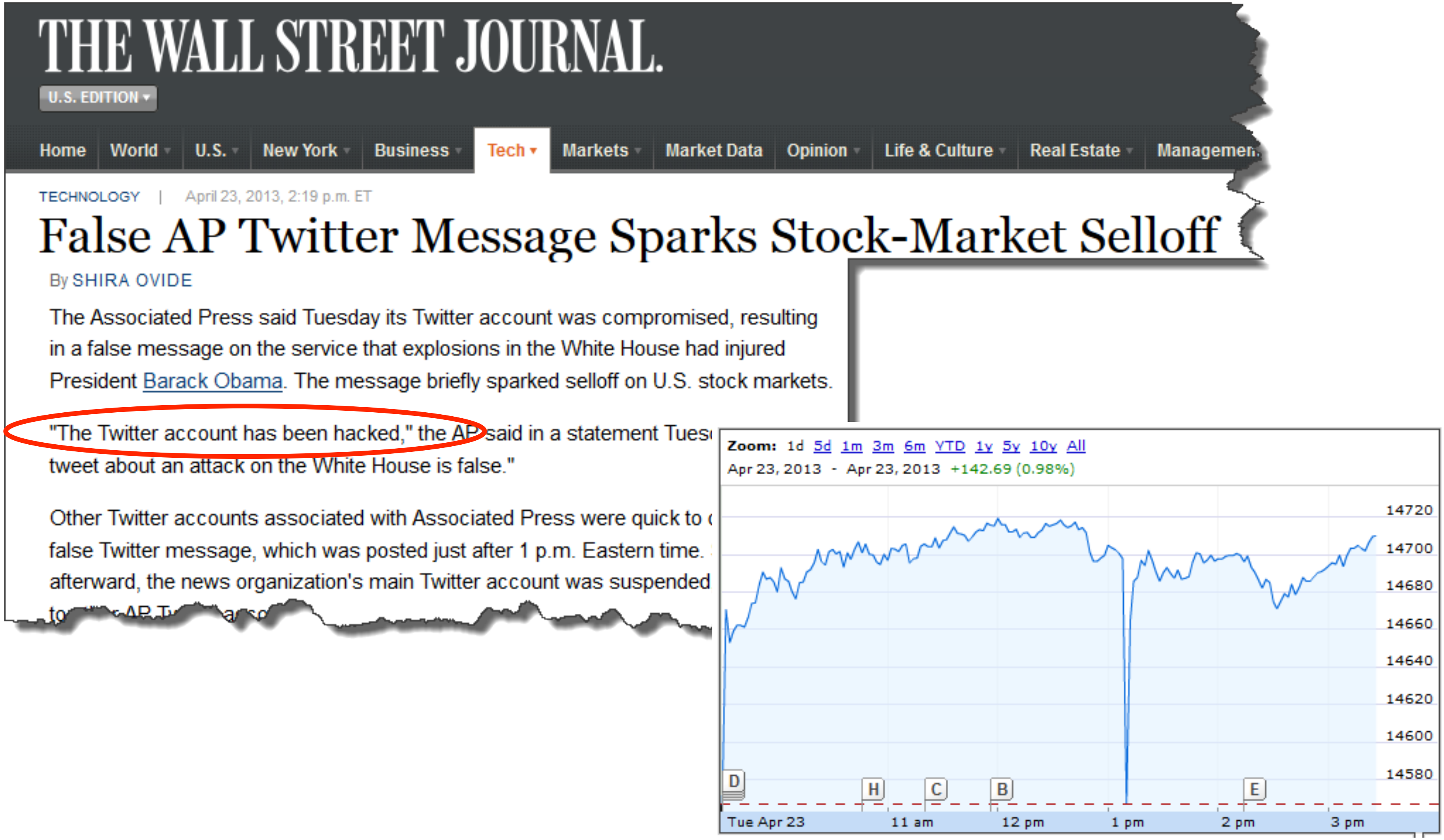
Not only new modes of attack

- Physical-enabled cyber attack
- Cyber-enabled physical attack

But also *less predictable* impacts . . .


Physical protection of cyber assets
Cybersecurity
Physical Security
Cyber protection of physical assets

April 23, 2013



THE WALL STREET JOURNAL.

TECHNOLOGY | April 23, 2013, 2:19 p.m. ET

False AP Twitter Message Sparks Stock-Market Selloff

By SHIRA OVIDE

The Associated Press said Tuesday its Twitter account was compromised, resulting in a false message on the service that explosions in the White House had injured President Barack Obama. The message briefly sparked selloff on U.S. stock markets.

"The Twitter account has been hacked," the AP said in a statement Tues
tweet about an attack on the White House is false."

Other Twitter accounts associated with Associated Press were quick to c
false Twitter message, which was posted just after 1 p.m. Eastern time.
afterward, the news organization's main Twitter account was suspended
to

Zoom: 1d 5d 1m 3m 6m YTD 1y 5y 10y All
Apr 23, 2013 - Apr 23, 2013 +142.69 (0.98%)
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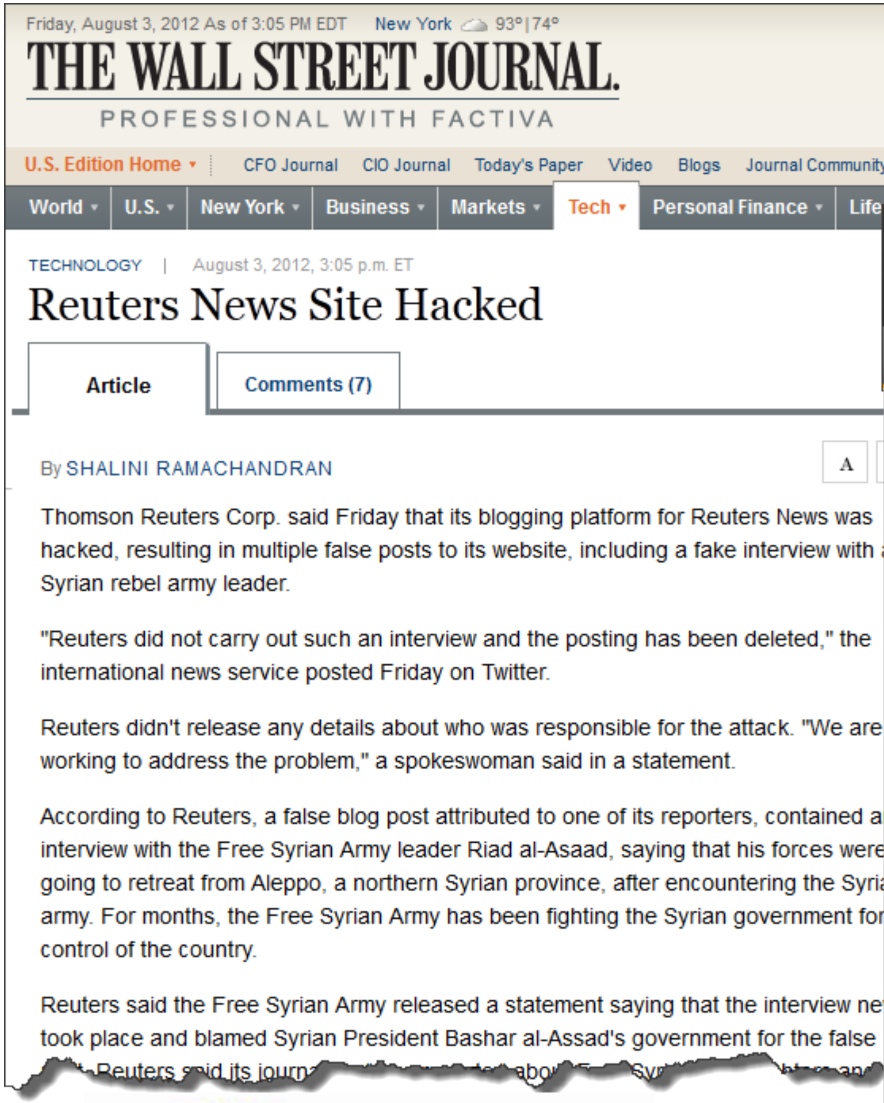
August 3 & 5, 2012



Friday, August 3, 2012 As of 3:05 PM EDT New York 93° | 74°

THE WALL STREET JOURNAL.

PROFESSIONAL WITH FACTIVA

TECHNOLOGY | August 3, 2012, 3:05 p.m. ET

Reuters News Site Hacked

By SHALINI RAMACHANDRAN

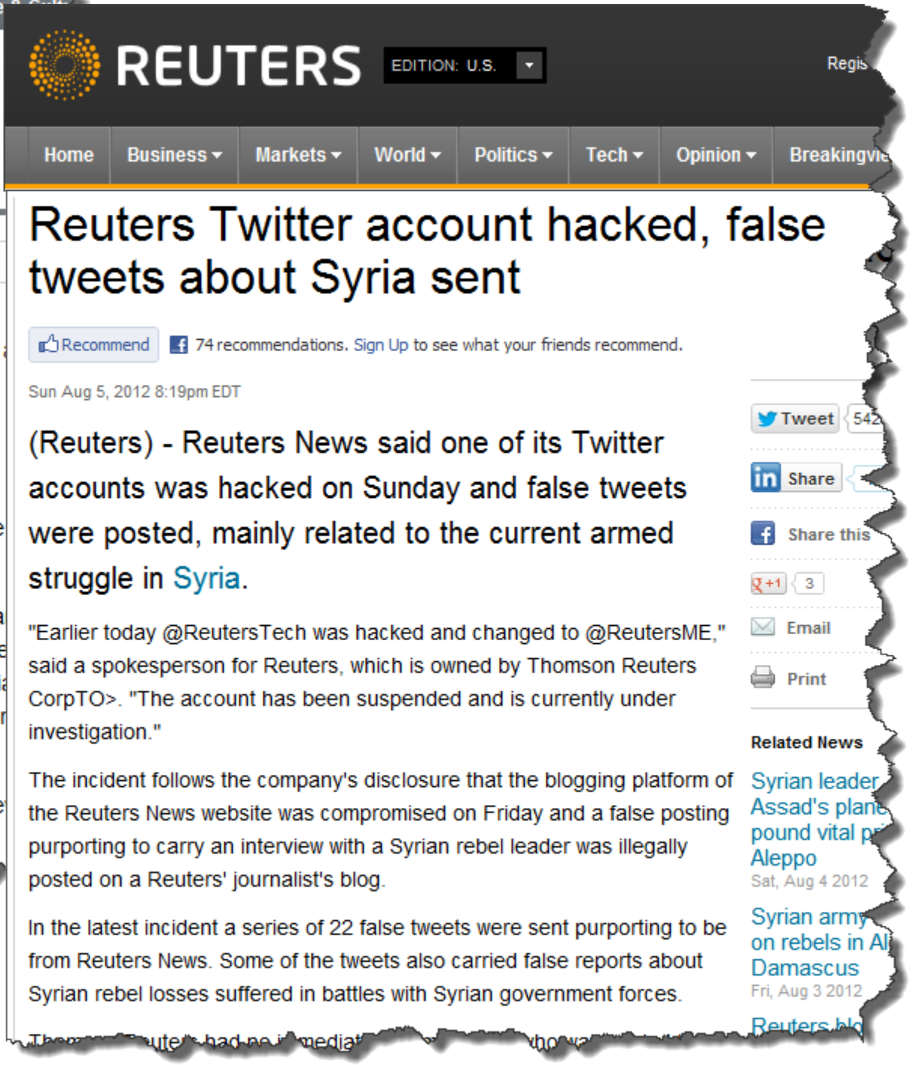
Thomson Reuters Corp. said Friday that its blogging platform for Reuters News was hacked, resulting in multiple false posts to its website, including a fake interview with a Syrian rebel army leader.

"Reuters did not carry out such an interview and the posting has been deleted," the international news service posted Friday on Twitter.

Reuters didn't release any details about who was responsible for the attack. "We are working to address the problem," a spokeswoman said in a statement.

According to Reuters, a false blog post attributed to one of its reporters, contained a interview with the Free Syrian Army leader Riad al-Asaad, saying that his forces were going to retreat from Aleppo, a northern Syrian province, after encountering the Syria army. For months, the Free Syrian Army has been fighting the Syrian government for control of the country.

Reuters said the Free Syrian Army released a statement saying that the interview ne took place and blamed Syrian President Bashar al-Assad's government for the false t. Reuters said its journ



REUTERS EDITION: U.S.

Reuters Twitter account hacked, false tweets about Syria sent

74 recommendations. Sign Up to see what your friends recommend.

Sun Aug 5, 2012 8:19pm EDT

(Reuters) - Reuters News said one of its Twitter accounts was hacked on Sunday and false tweets were posted, mainly related to the current armed struggle in Syria.

"Earlier today @ReutersTech was hacked and changed to @ReutersME," said a spokesperson for Reuters, which is owned by Thomson Reuters CorpTO>. "The account has been suspended and is currently under investigation."

The incident follows the company's disclosure that the blogging platform of the Reuters News website was compromised on Friday and a false posting purporting to carry an interview with a Syrian rebel leader was illegally posted on a Reuters' journalist's blog.

In the latest incident a series of 22 false tweets were sent purporting to be from Reuters News. Some of the tweets also carried false reports about Syrian rebel losses suffered in battles with Syrian government forces.

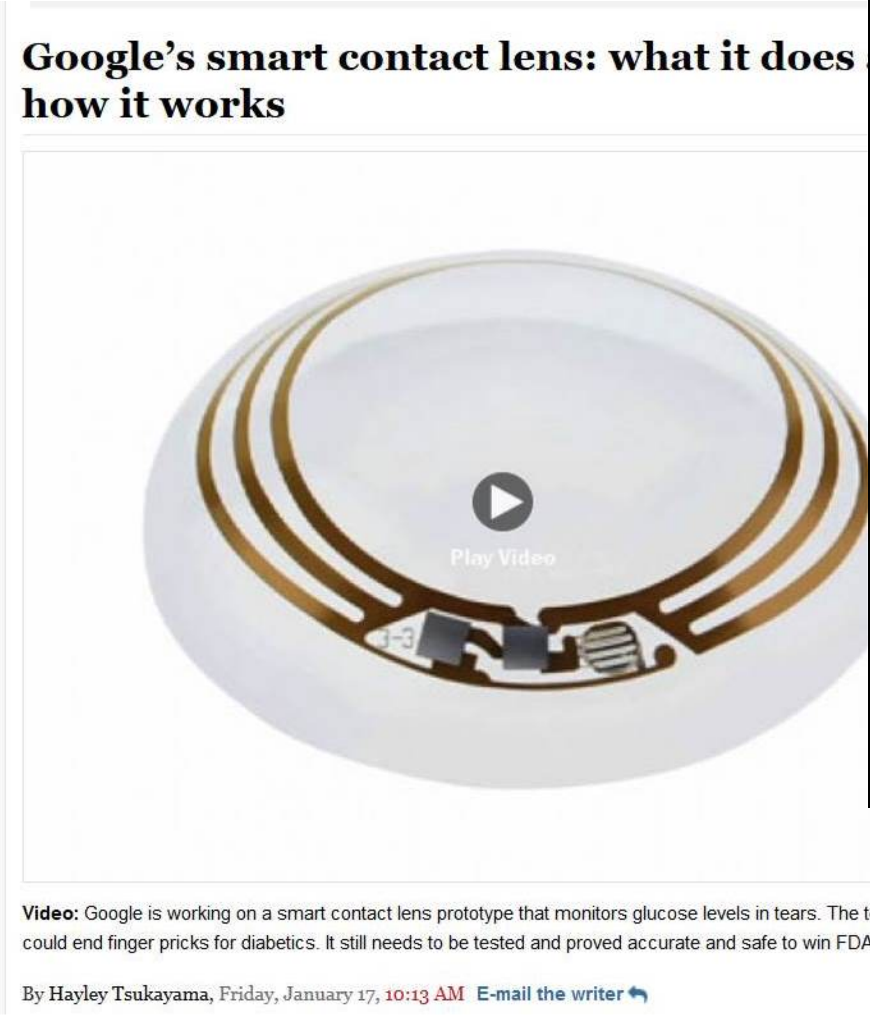
Related News

Syrian leader Assad's plane pound vital p Aleppo
Sat, Aug 4 2012

Syrian army on rebels in Al Damascus
Fri, Aug 3 2012

Reuters blo

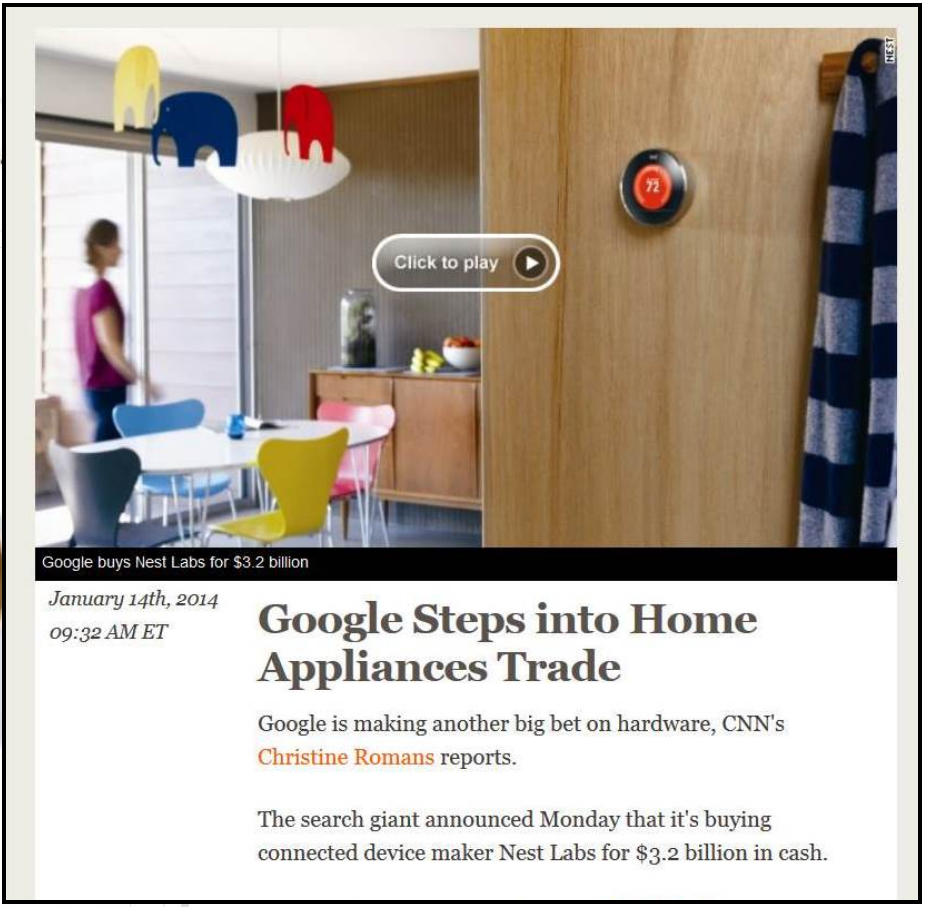
New Applications



Google’s smart contact lens: what it does how it works

Video: Google is working on a smart contact lens prototype that monitors glucose levels in tears. The technology could end finger pricks for diabetics. It still needs to be tested and proved accurate and safe to win FDA approval.

By Hayley Tsukayama, Friday, January 17, 10:13 AM E-mail the writer



Google buys Nest Labs for $3.2 billion

January 14th, 2014
09:32 AM ET

Google Steps into Home Appliances Trade

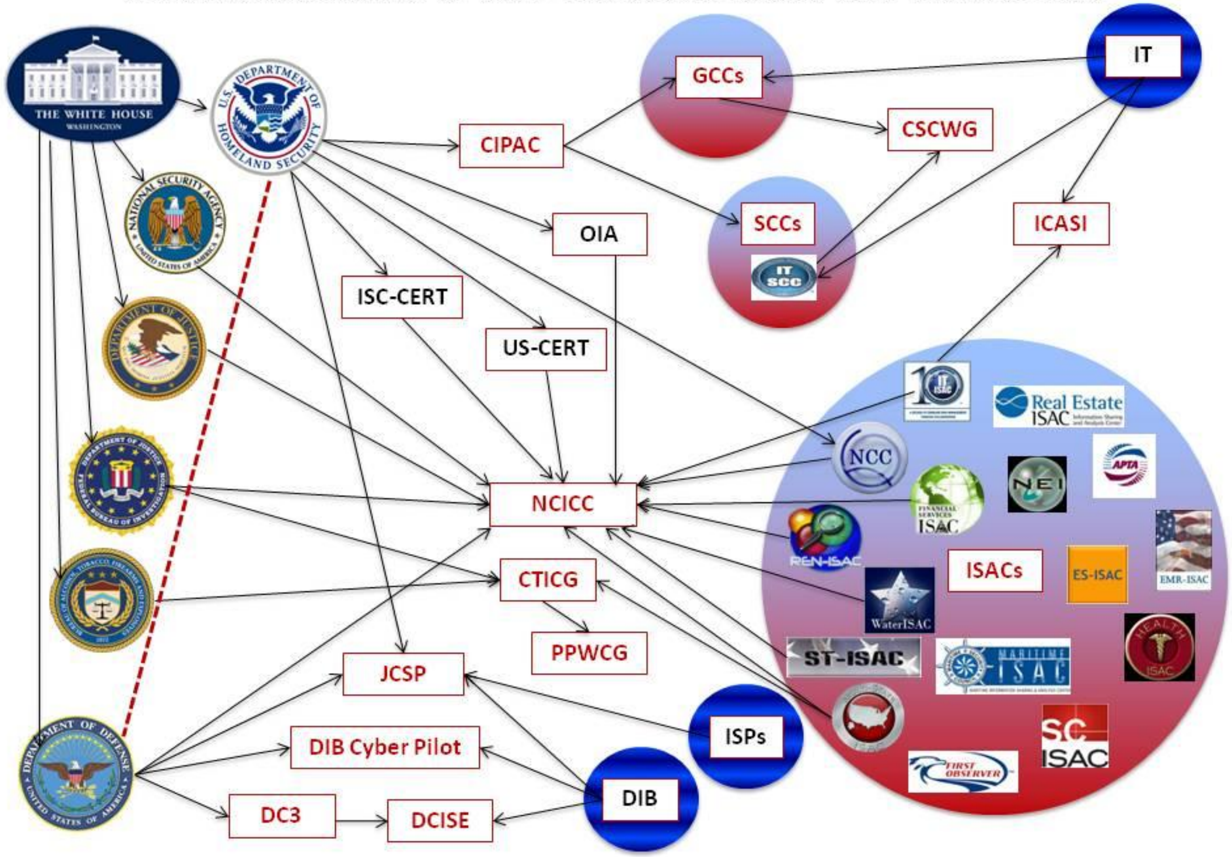
Google is making another big bet on hardware, CNN's Christine Romans reports.

The search giant announced Monday that it's buying connected device maker Nest Labs for $3.2 billion in cash.

Cooperation (and Information Sharing)

Is it getting better?

KEY INSTITUTIONS IN THE CYBERSECURITY PPP LANDSCAPE



Financial Sector Attacks, Late 2012

DDOS attacks targeted major banks and financial institutions.

Website disruptions:

- Wells Fargo
- PNC
- USBank
- Bank of America
- JP Morgan Chase
- Citigroup
- Others

Public-Private Partnership in Action

DHS, NSA, and FBI provided on-request support to organizations that were attacked.

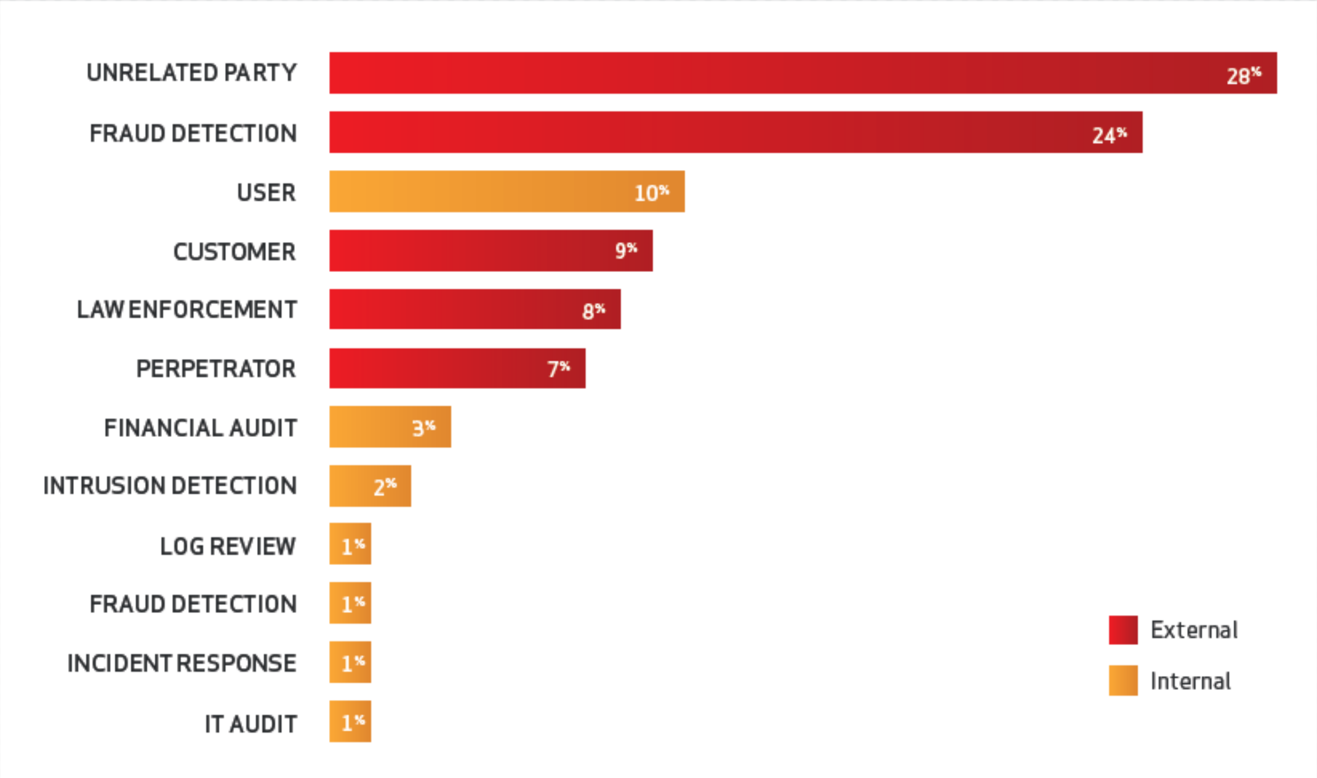
DHS has improved its capability to aid the attacked organizations:

- Information gathering, analysis, and sharing
- Recommendations for mitigations
- Clarification of contact points

> *"A year ago, quite frankly, the capability was not there. We did not have the capacity to collaborate nearly as effectively as we do now. I won't say that it has become almost pro forma, but it's become a lot more routine for how we do this now than it was just a few months ago."*
>
> —Mark Weatherford, DHS Deputy Undersecretary for Cybersecurity, January 2013

A Practical Case for Situational Awareness

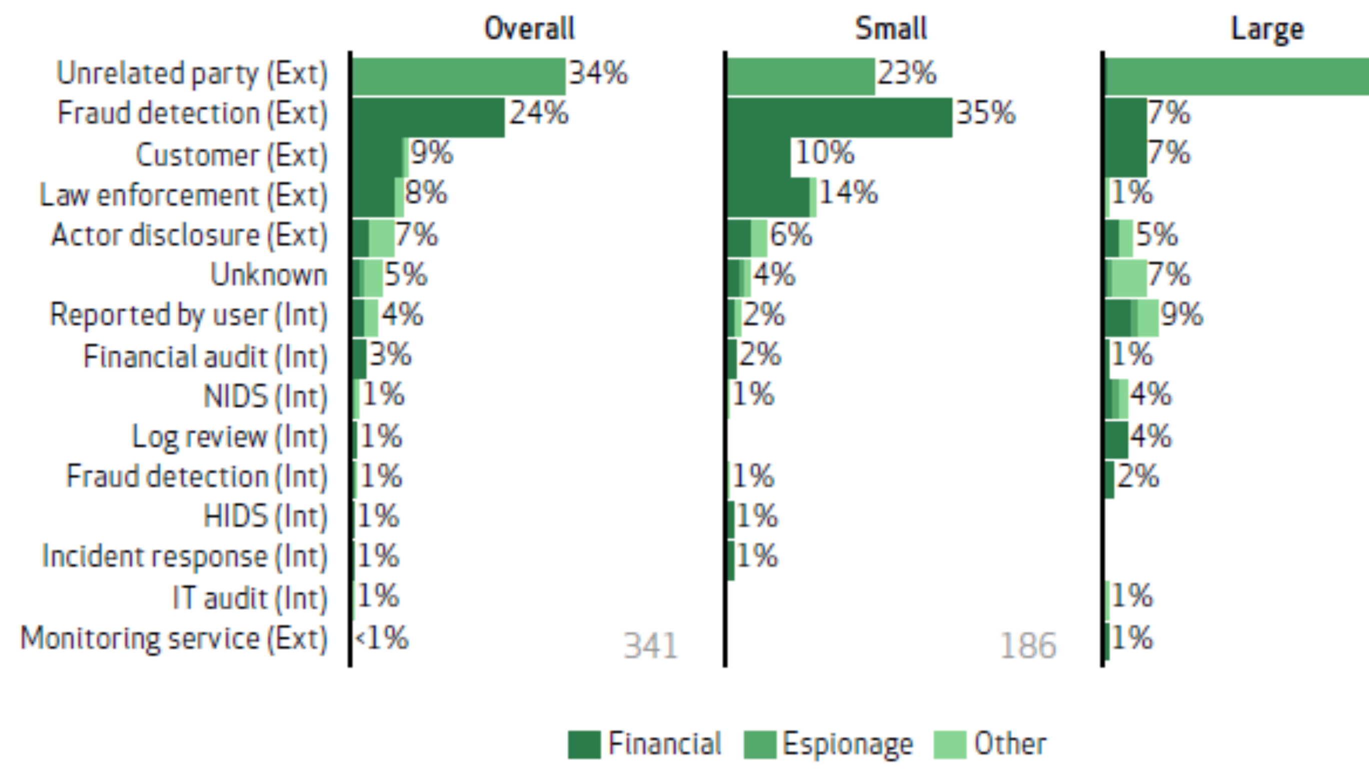
Figure 6: Who identifies data breaches



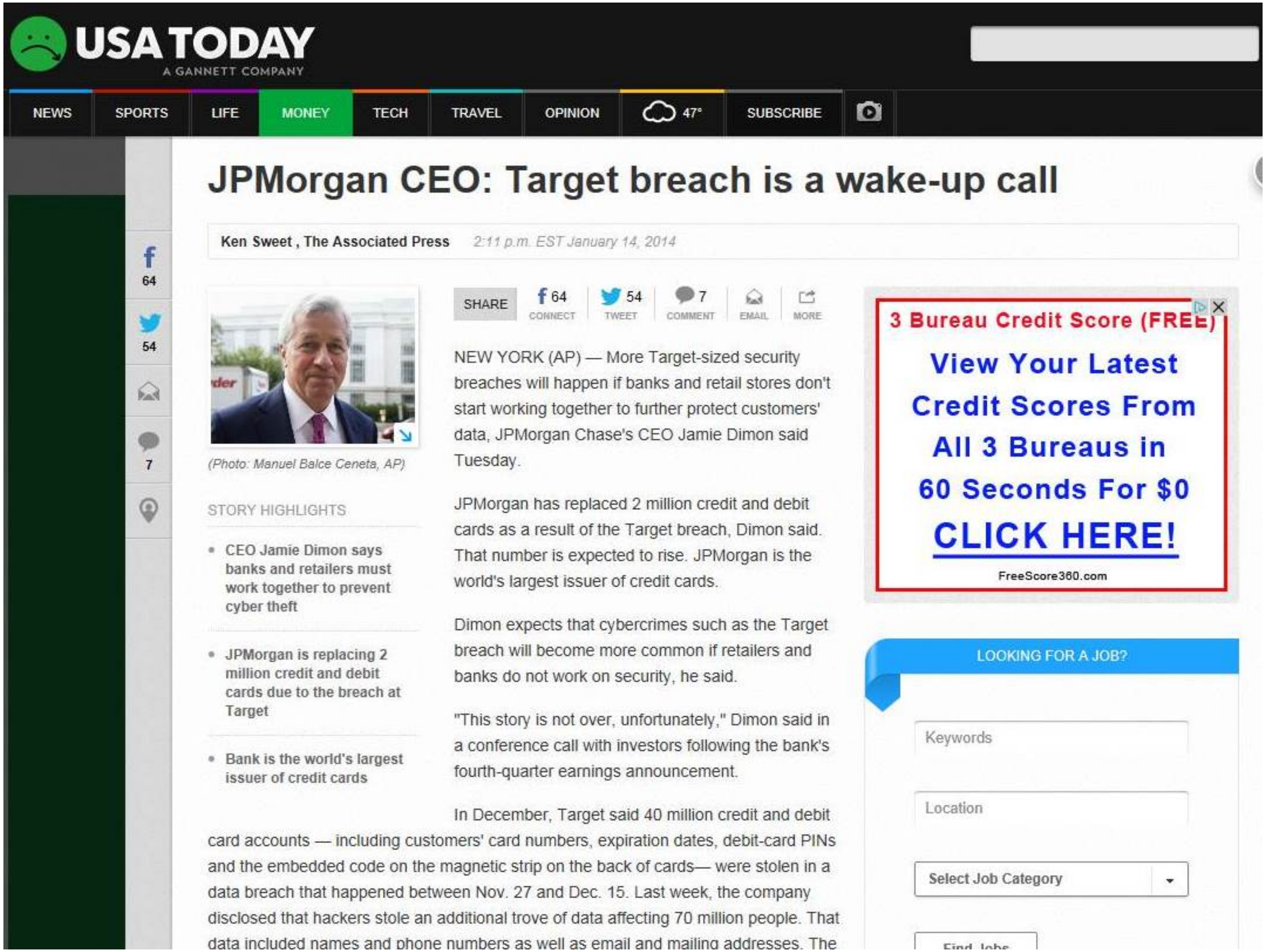
Many organizations devote a disproportionate amount of time and money to detection methods that fall below the 1% mark.

Discovery Methods vs. Size

Figure 44: Discovery methods



Recent News



JPMorgan CEO: Target breach is a wake-up call

Ken Sweet , The Associated Press 2:11 p.m. EST January 14, 2014

(Photo: Manuel Balce Ceneta, AP)

STORY HIGHLIGHTS

- CEO Jamie Dimon says banks and retailers must work together to prevent cyber theft
- JPMorgan is replacing 2 million credit and debit cards due to the breach at Target
- Bank is the world's largest issuer of credit cards

NEW YORK (AP) — More Target-sized security breaches will happen if banks and retail stores don't start working together to further protect customers' data, JPMorgan Chase's CEO Jamie Dimon said Tuesday.

JPMorgan has replaced 2 million credit and debit cards as a result of the Target breach, Dimon said. That number is expected to rise. JPMorgan is the world's largest issuer of credit cards.

Dimon expects that cybercrimes such as the Target breach will become more common if retailers and banks do not work on security, he said.

"This story is not over, unfortunately," Dimon said in a conference call with investors following the bank's fourth-quarter earnings announcement.

In December, Target said 40 million credit and debit card accounts — including customers' card numbers, expiration dates, debit-card PINs and the embedded code on the magnetic strip on the back of cards— were stolen in a data breach that happened between Nov. 27 and Dec. 15. Last week, the company disclosed that hackers stole an additional trove of data affecting 70 million people. That data included names and phone numbers as well as email and mailing addresses. The

How can a resilience view help?

Continuity of Operation (COOP)

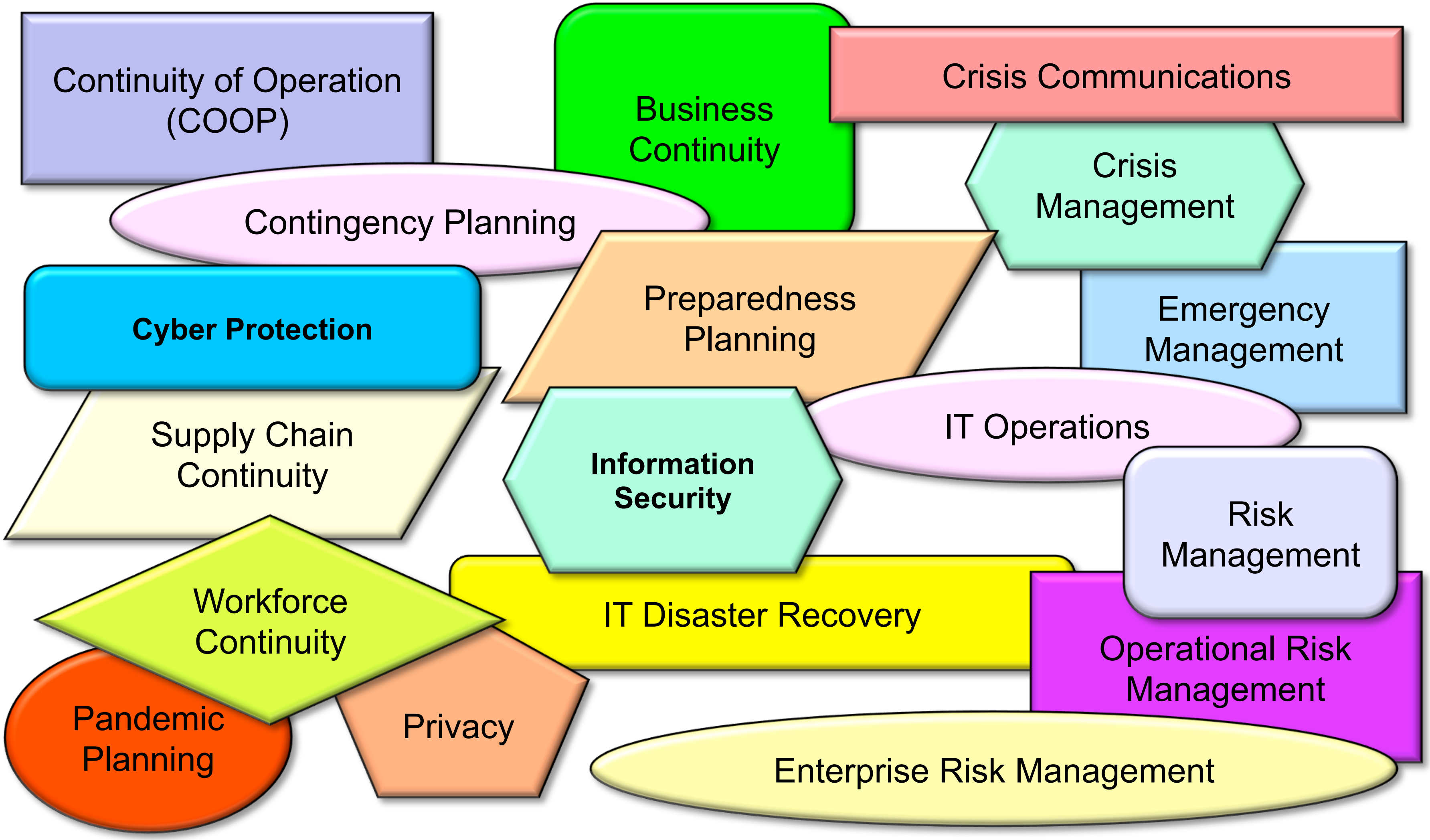
Business Continuity

Emergency Management

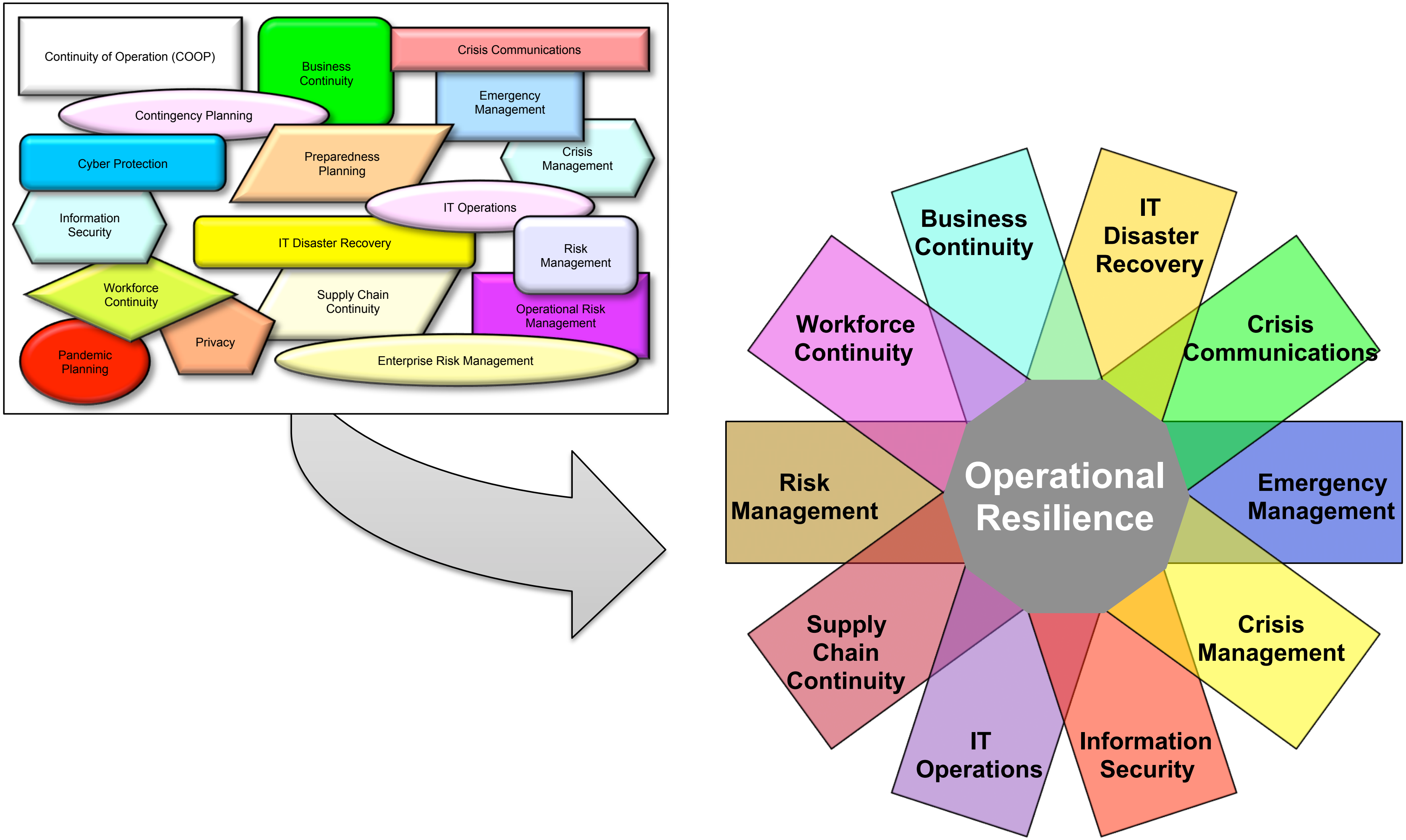
Yesterday's Preparedness Planning

IT Disaster Recovery

Today’s Preparedness Planning



Desired Direction



In Closing

Organizations are faced with an ever growing list of cyber security demands and complexities for a variety of reasons:

- Complex business relationships and economic pressures
- Legal uncertainty and jurisdictional issues
- Incident impacts and consequences that are difficult to predict
- . . . among many others

A system to engineer and manage enterprise cyber security activities can help.

> “The oak fought the wind and was broken,
> the willow bent when it must and survived.”
>
> Robert Jordan, The Fires of Heaven

Introduction to the CERT Resilience Management Model

February 18 - 20, 2014 (SEI, Arlington, VA)
June 17 - 19, 2014 (SEI, Pittsburgh, PA)

See Materials Widget for course document

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